

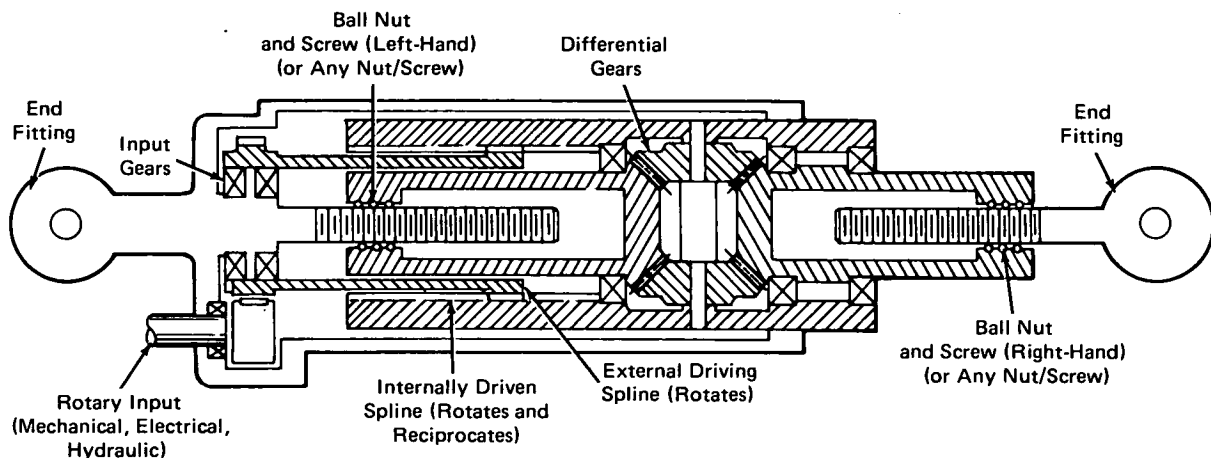
NASA TECH BRIEF

Lyndon B. Johnson Space Center



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Redundant Screwjack



The problem:

Screwjacks used as actuators on aircraft flap systems, and in other critical applications, may be subject to failures. These failures occur in the existing double-nut and telescoping-type screwjacks when any of the nut-screw assemblies jams.

The solution:

A redundant screwjack uses differential gears to drive either one of the nut-screw assemblies, in the event that the other jams.

How it's done:

The redundant screwjack (see figure) utilizes input gears to drive a rotary external spline which, in turn, meshes with and drives an internal spline. The internal spline is designed to rotate and reciprocate with the external one. The internal spline also supports the spider input to the differential gears. These gears rotate the right- and left-hand ball nuts which move the left- and right-hand screws, extending or retracting them. The screws do not rotate but are firmly attached to the structure.

If either nut-screw combination jams, the differential gears will drive the other combination at twice its normal rate with no loss in overall performance.

Note:

No further documentation is available. Specific questions, however, may be directed to:

Technology Utilization Officer
Lyndon B. Johnson Space Center
Code JM7
Houston, Texas 77058
Reference: B73-10070

Patent status:

NASA has decided not to apply for a patent.

Source: R. W. Benjamin of
Rockwell International Corp.
under contract to
Johnson Space Center
(MSC-19200)